

effect to draw the physicians of the Veterans' Bureau, who deal with tuberculosis, from the U. S. Public Health Service.

In conclusion, might we say that:

1. The remunerations of the tuberculous veteran should be changed and coördinated in a program that will

a. Retain patient in hospital as long as necessary,

b. Give a bonus for discharge, and a

c. Stimulation to carry on a proper follow-up.

2. Medical personnel be improved.

a. Change in above regulations will help morale of medical staff.

b. Draw new personnel for tuberculosis hospitals from U. S. Public Health Service.

3. We should propagandize the country, the Congress, the American Legion and other organizations to the need of change, from the N.T.A. on the top to the tiniest local tuberculosis association in the county.

Tuberculosis organizations have this year taken twelve million dollars from the country. This contribution can be justified only if a sincere attempt is made to improve this situation at this critical time.

Arroya del Valle.

SOME NEWER ASPECTS OF RHEUMATIC FEVER*

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DURING the early years in the heart clinic of the Children's Hospital in Los Angeles, we saw a steadily increasing number of children with unquestioned rheumatic heart disease, but were puzzled by the statement that several experienced pediatricians had never seen acute rheumatic fever in private practice. Most of these children were born in Los Angeles, very few were indigents, some were new arrivals. What accounted for this discrepancy? Was it a disease purely of the public-ward child from across the tracks or were other cases escaping diagnosis?

Acute rheumatic fever has an onset like an infection in 85 per cent of the cases, according to Cohn and Lingg in their recent review of 12,000 cases. It has an active phase which more or less quickly passes over into a latent phase, from which it readily can be reactivated. The duration of the total phase is, on the average, about five years, before it passes into an inactive phase. Reactivation, recurrence or recrudescence from this inactive phase is still possible. With each reactivation of the disease, the possibility of increased heart damage becomes more probable. Rheumatic heart disease presupposes that the individual has had sometime in the past an active form of the disease, even though history fails to elicit symptoms.

EVOLUTION OF PRESENT CONCEPT SLOW

The evolution of our modern concept of this disease has been very slow. Coburn has postulated the idea that rheumatic fever may not necessarily be a new or unknown infection set off or incited by the streptococcus, acting as a trigger or percussion cap, but that it might represent a state of chronic streptococcic infection with only partial immunity or faulty immunity to the disease. This parallels the older hypothesis of Swift, that a persistence of a streptococcic infection in rheumatic fever sufferers might set up an allergic-like activity in his tissues. The recent work of T. Duckett Jones, in which he was able to predict outbreaks of acute rheumatic fever in the Eastern Naval Training stations by finding an increased count of Group A organisms in the air about these stations, again forges an important link in our concept.

It is well known that the interval of time during which hemolytic streptococci are found in the throat in acute tonsillitis and scarlet fever is identical, and that the time interval before the appearance of acute arthritis, carditis or acute nephritis is also identical—averaging roughly 18 days. John R. Paul, in his excellent and all-comprehensive monograph on the etiology of rheumatic fever, suggests from this that perhaps the rheumatic child may be, for hereditary or acquired reasons, less capable of handling an acute streptococcal infection than the nonrheumatic. He believes that there is yet much to be explained in the streptococcal conception, but adds that the apparent protection of rheumatic children from recurrences by the prophylactic use of sulfanilamide, as reported recently by Ann Kuttner, in the Modern Concepts of Cardio-Vascular Disease, certainly gives support to this concept.

AVERAGE AGE OF ONSET IS SEVENTH YEAR

Alfred Cohn, in his recently completed, 15-year study of the natural history of rheumatic fever, brings out some interesting points relative to the age of onset. He states that the disease may start at any age, but the average age of onset is the seventh or eighth year. He emphasizes that the onset in certain age groups is associated with symptoms which tend to fall into definite patterns. In those acquiring the disease before the tenth year, vague muscle and joint pains, polyarthritis, chorea and carditis are found singly or combined in 85 per cent of the cases. Around the age of 5, the tendency is to vague and indefinite muscle and joint pains. At 8 years, the peak for chorea as initial symptom is very sharp. Before the 20th year muscle and joint pains, and chorea are found in about 20 per cent, but after the 20th year these forms tend to drop out, leaving only polyarthritis and carditis as initial symptoms. Fewer than 5 per cent have initial onset after the 40th year. Carditis, as an initial symptom, reaches a peak at the 6th year, polyarthritis between the 6th and 8th years.

* From the Los Angeles Children's Hospital. Synopsis of a paper read before the California Tuberculosis and Health Association, Los Angeles, March 29, 1944.

Much has been written of the existence of rheumatic families in whom, or rather in the offspring of whom, rheumatic fever is more prone to occur. With the advent of our newer knowledge of the infectious possibilities of the disease, it was first thought that this explained familial occurrence. The careful genetic studies of Mae G. Wilson, however, point out that the Mendelian law is followed with amazing accuracy, and it must be concluded that the soil of the host is an important factor.

SYMPTOMS MILD IN SOUTHERN CALIFORNIA

To one who comes to Southern California from the northeast, it may appear on the surface that there is less rheumatic fever here than really exists because of the mildness of the symptoms. Few children here give the classical textbook histories or signs of the active acute phase. Joints are seldom red, swollen, hot and tender or, if they are on hospital admission, they rarely persist long enough to teach a class of students from them.

Alexander T. Martin of New York emphasizes, from a 22 year experience covering 1,438 rheumatic children, the high incidence of the disease. He points out that rheumatic heart disease constitutes 25 per cent of all deaths from heart disease, accounting for 40,000 deaths yearly at an average age of 30 years. Roughly, 1 per cent of all school children or about 200,000 are afflicted between the ages of 5 and 19.

The common onset of rheumatic fever is from the fifth to the fifteenth year, but, remember, it has been discovered in utero, we have seen it in two-year olds, I now have a young woman down with her first attack at 38, and a man of 39 in the first recurrence since his original attack in Winnipeg at nine years. The first five years from the original attack are the critical years during which most recurrences and deaths occur. If the average onset is at the 7th or 8th year, this five-year critical period may account for the seeming decrease after puberty rather than any sudden change in resistance to infection. To be sure, recurrences after puberty are less common, and the monocyclic form is more often to be expected. Deaths from the disease may or may not be associated with congestive failure; more often the latter plays only a minor rôle in the child. On the other hand, congestive failure in the child is almost invariably associated with a flare-up of the disease, and often this factor should receive the major attention.

DIAGNOSIS OFTEN DIFFICULT

Diagnosis offers no problem when the child presents the outstanding symptoms of polyarthrititis, carditis, severe leg or muscle pains, or chorea, and exhibits high fever, sweats, leucocytosis and prostration. The more difficult, and demanding of closer scrutiny, is that child observed to tire more easily, who remains thin and fails to gain weight, or who has frequent nosebleeds and

marked pallor. He may run bouts of slight, unexplained fever, fleeting pains in muscles and about joints so trivial that they may not be mentioned, unless patient or parents are closely quizzed. Irritability, nervousness, change in disposition should make one suspicious. Very frequent colds, so-called feverish colds, and sore throats may be the only symptoms less alert parents may have observed. These were the only symptom in 9 per cent over a four-year period at the Children's Hospital in Los Angeles. It is truly a misfortune we still have no specific test of the presence of the infection comparable to the Widal test; yet the presence with any of the above symptoms of slight fever, leucocytosis, increased and persistently rapid heart-rate, and a persistently elevated erythrocyte sedimentation rate, should make one consider the diagnosis of rheumatic fever most likely. To be sure, it at present is still an exclusion diagnosis. Demonstrable evidence of valvulitis rarely occurs early in the first attack, although the heart is usually involved. The appearance of an apical systolic murmur or a gallop rhythm, or a prolongation of the PR interval, will confirm the diagnosis. True polyarthrititis, subcutaneous nodules or a pericarditis may later appear. Erythema multiforme is frequently missed because of the transient duration of this phenomenon.

Occasionally, one sees acute abdominal pain as a first symptom, many of these coming to us after the surgeon has removed a normal appendix. Not a few are admitted as poliomyelitis suspects. All so-called growing pains should be regarded as rheumatic, unless some definite cause, such as faulty arches or bad posture, can justify a less serious diagnosis. The minor degrees of chorea are rarely missed if the observer remembers that the choreic movement is purposeless, involuntary, sudden and nonrhythmic and, most commonly, involves the diaphragm early. The attitude towards chorea is at present undergoing some revision. When it occurs in pure form, devoid of any of the other symptoms of rheumatic fever, the heart is rarely found damaged, even though it may recur. The sedimentation rate in this condition remains normal unless some other evidence of rheumatic fever is found, and likewise leucocytosis is absent.

SEDIMENTATION RATE NOT A SURE GUIDE

Right here, may I offer a word of caution about the erythrocyte sedimentation rate. It remains one of our most useful aids in following the child or adult with rheumatic fever; it is, however, a nonspecific test. It is exaggerated in anaemia, it is normal in pure chorea and in the very acutely-ill patient with carditis and right ventricular failure, and engorged liver, it remains normal or less than normal—rising only when decompensation has disappeared. It becomes more valuable as our most reliable guide in knowing when the latent phase has passed into the inactive phase.

It is my belief that the factor of secondary anaemia, which is such a common finding in rheumatic fever, is emphasized too little. It is my feeling that the more profound the anaemia, the more extensive and rapidly progressive will be the heart damage.

The earlier the diagnosis, the better will be the prognosis if proper care is instituted. Few die in the first attack. The immediate care, absolute bed rest, salicylates, opiates or sedatives to maintain rest, digitalis or cedilanid if needed, iron, adequate diet and vitamins are well known to you all. One word of caution: it is universally agreed that once rheumatic fever has begun, all the present sulfonamides are definitely contraindicated and serve to do harm during the active phase.

At present, our best mode of avoiding recurrences is to keep the patient screened in so far as possible from streptococcus infection until the most critical 5 years' period is over.

Complete bed rest during the active acute stage is imperative, and should continue throughout the latent stage until complete inactivity is reached.

When is the disease inactive? When all symptoms and signs of the disease have disappeared, together with a return to normal of the white-blood cell count, the hemoglobin and the red-blood cell count, the sedimentation rate and the temperature. When the appetite and weight zoom upward, together with the zest and exuberance of the healthy child, when nodules have all gone and the heart-rate drops to normal, and the electrocardiogram shows that conduction time has returned to near normal, then only may one begin to allow a graduated measure of activity.

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PERSPECTIVES AND TRENDS IN TUBERCULOSIS*

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A FEW high spots stand out in the development of our knowledge of tuberculosis. The first one is featured by Laennec, who pointed to the kinship between histological tubercle, the cavity and all the stages between. Villemin furnished unquestionable proof that tuberculosis was infectious, and Koch's discovery of the tubercle bacillus laid the foundation for a great deal of spade work that has been done in the modern era. Pirquet's tuberculin test brought knowledge that tuberculous infection is widespread among us, and the coming of the x-ray made the scheme of modern treatment possible.

The intelligent use of bed rest, popularized by Trudeau, and the advent of collapse therapy, combined with intelligent use of bed rest, have

brought us to our present rather favorable situation.

What are the trends in treatment of this disease today? Pneumothorax has been used extensively for thirty years, during which the range in indications, technique, complications and results has been wide. Its use, misuse and abuse have brought it into serious question. Those who use it intelligently find it highly valuable, but they feel the need of a new set of criteria. They would sharpen its indications and point out anew its contraindications, and would employ pneumonolysis increasingly.

NEW CRITERIA FOR USE OF SURGERY NEEDED

It was a great day when the surgeon took his place in the council chamber of tuberculosis physicians. He gave a practical turn to the treatment and added procedures, neglect of which would be tantamount to malpractice. Some surgeons would remove lobes or lungs for tuberculosis. This is a question that should receive and is receiving careful scrutiny.

Surgeon and physician alike may have overplayed the issue in stressing sputum conversion and cavity closure as the *only* major desiderata. Physiological and functional evaluation, prior to operation, are of greatest importance and should be used more extensively. The physiological laboratory should have as prominent a place in the sanatorium menage as the pathological laboratory.

The laboratory has grown with the years and is now usually a well-run integral division of the sanatorium. It yields tubercle bacilli in the greatest variety of secretions and excretions of tuberculous persons, and in circumstances where its presence had only been suspected before. It is the duty of clinician, however, to evaluate the situation in respect to the significance of bacilli. He must take into account the intelligence of the patient, his postdischarge plans and his family, the type of disease, the kind of collapse and the competence of the healing process as shown by x-ray.

PARTICIPATION OF LAYMEN

Sanatoria and the tuberculosis effort in general challenge clinician and pathologist to study the many questions that still remain unanswered. Chemotherapy clamors for attention. We still have a sorry showing in the early diagnosis and treatment of complications. We are too often careless about an adequate dietary for tuberculous patients.

Laymen may well participate in the general battle against tuberculosis. In two particular fields at present there is urgent opportunity for the layman to become a yeoman. These two fields concern, first, the legislative situation which tends more and more to make tuberculosis a compensable disease and, as a side effect, to lessen the expatient's opportunity to obtain employment; and, secondly, rehabilitation for the tuberculous,

* From the William H. Maybury Sanatorium (Detroit Tuberculosis Sanatorium) Northville, Mich.

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